

# PATENT COOPERATION TREATY

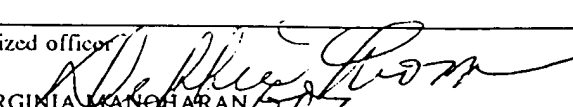
## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A96158WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US97/11261	International filing date ( <i>day/month/year</i> ) 27 JUNE 1997	Priority date ( <i>day/month/year</i> ) 27 JUNE 1996
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant HOLCOMB, ROBERT R.		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>5</u> sheets.  <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of <u>—</u> sheets.
3.	This report contains indications relating to the following items: <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step or industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li> </ul>

Date of submission of the demand  27 JANUARY 1998	Date of completion of this report  13 AUGUST 1998
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer  VIRGINIA MANOHARAN

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/11261

**I. Basis of the report**

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments):*

☒ the international application as originally filed.

☒ the description, pages 1-9, as originally filed.

pages NONE, filed with the demand.

pages NONE, filed with the letter of \_\_\_\_\_.

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the claims, Nos. 1-21, as originally filed.

Nos. NONE, as amended under Article 19.

Nos. NONE, filed with the demand.

Nos. NONE, filed with the letter of \_\_\_\_\_.

Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the drawings, sheets/fig 1-8, as originally filed.

sheets/fig NONE, filed with the demand.

sheets/fig NONE, filed with the letter of \_\_\_\_\_.

sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

☒ the description, pages NONE.

☒ the claims, Nos. NONE.

☒ the drawings, sheets/fig NONE.

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/11261

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1 - 21</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1 - 21</u>	NO
Industrial Applicability (IA)	Claims <u>1 - 21</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-19 and 21 lack an inventive step under PCT Article 33(3) as being obvious over the WORLD '419 in view of ARBOGAST.

The WORLD '419 describes in page 7, lines 1-38, the method and means for heating degassed water, for injecting the degassed water into an evaporator, and for condensing and cooling the water as claimed. To inject the heated degassed water into a vacuum chamber in order to superheat the water and to allow the superheated water to vaporize in an explosive manner (flash evaporate) as taught by ARBOGAST would not involve an inventive step since ARBOGAST provides a teaching, in the abstract, that the superheating destroys bacterial impurities, and the flashing removes and vents entrapped gaseous contaminants.

Claim 20 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of DAVIS et al.

To further provide a backwash system that is timed and sequenced by a computer processor would not involve an inventive step since DAVIS et al teaches in column 70, lines 32-51, that it is known to control a backwash system by a computer processor.

Claims 1-21 have industrial applicability under PCT Article 33(4) because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

US 3,648,438 A (ARBOGAST) 14 MARCH 1972, see the abstract and column 1, lines 33-48 and lines 65-68.

WO 94/02419 A (TAJER-ARDEBILI) 03 FEBRUARY 1994, see page 7, lines 1-38.

US 4,385,357 A (DAVIS et al) 24 MAY 1983, see column 70, lines 32-51

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 1-8, 11-12, 15, 18, and 19-21 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims are indefinite for the following reason(s):

a). The following recitations lack proper antecedent basis for support in the claims:

- 1). "incoming water to the system", claim 7, line 3;
- 2). "the process water", claim 8, line 1;
- 3). "the incoming water line", claim 12, line 2;
- 4). "the counter current exchanger", claim 15, line 2;
- 5). "the "preheat" heat exchanger", claim 18, lines 3-4;
- 6). "the feedwater "preheat" heat exchanger", claim 19, line 4;
- 7). "the system" and the "the computer processor", claim 20, line 3 and line 4 respectively; and
- 8). "the unit", claim 21, line 1.

b). It is unclear what "water" is being referred to in claim 3, line 2, i.e., whether it is the degassed water, the superheated degassed water or the condensed water recited in claim 1 that is being pumped through the mineral column and carbon column?

c). Using quotation marks e.g., as in "preheat"; "high side"; and "off taste" provide for ambiguity in the claims. See e.g., claims 11-12 and 18-19.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/11261

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

**CLASSIFICATION:**

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(6): IPC(6) :B01D 3/06, 3/10, 3/42; C02F 1/06, 1/16, 1/20 and US Cl.: US CL : 202/176, 185.1, 197, 200, 202, 205;  
203/11, 22, 40, 88, 91, Dig. 4, Dig. 18; 210/138,143,662,670, 774; 364/500,

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US97/11261

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :IPC(6) :B01D 3/06, 3/10, 3/42; C02F 1/06, 1/16, 1/20

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : Please See Extra Sheet.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,427,495 A (MASERO) 24 January 1984, col. 4, lines 39-40.	1, 9, 13
Y	US 5,227,027 A (TOPPER) 13 July 1993, abstract.	4-6, 10, 12, 19
Y	US 4,953,694 A (HAYASHI ET AL) 04 September 1990, col. 5, lines 30-32.	3, 11
A	US 3884,767 A (POTTHARST, JR.) 20 May 1975, entire document.	1-21
Y	US 4,222,825 A (EISDEN) 16 September 1980, abstract.	3,11

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

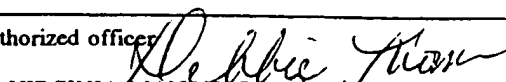
14 OCTOBER 1997

Date of mailing of the international search report

27 OCT 1997

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT

Authorized officer



**INTERNATIONAL SEARCH REPORT**

**International application No.**

**PCT/US97/11261**

**A. CLASSIFICATION OF SUBJECT MATTER:**

**US CL :**

**US CL :** 202/176, 185.1, 197, 200, 202, 205; 203/11, 22, 40, 88, 91, Dig. 4, Dig. 18; 210/774, 787

**B. FIELDS SEARCHED**

**Minimum documentation searched**

**Classification System: U.S.**

**US CL :** 95/266; 96/156; 159/2.1, 6.1; 202/176, 185.1, 197, 200, 202, 205; 203/2, 10, 11, 22, 27, 40, 88, 91, Dig. 4, Dig. 18; 210/774, 787